

**AMENDMENTS TO THE CLAIMS**

The listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims**

1. (Currently Amended) A defect inspection apparatus for inspecting pattern on an object, comprising:

an image pickup device for performing an image pickup of an object to acquire data of an inspection image which is multitone;

a memory for storing data of a reference image; and

an operation part for obtaining transfer characteristics to enhance difference between arbitrary pixel values ~~pixels~~ among a plurality of specified pixel values which are specified in defect detection relatively to difference between arbitrary pixel values other than said plurality of specified pixel values and then obtaining an enhanced differential image between said inspection image and said reference image on the basis of said transfer characteristics, to perform an inspection on the basis of said enhanced differential image.

2. (Original) The defect inspection apparatus according to claim 1, wherein  
said operation part converts said inspection image and said reference image on the basis of said transfer characteristics to obtain a differential image between a converted inspection image and a converted reference image as said enhanced differential image.

3. (Original) The defect inspection apparatus according to claim 1, wherein said transfer characteristics is determined on the basis of pixel values of said inspection image or said reference image.
4. (Original) The defect inspection apparatus according to claim 3, wherein said plurality of specified pixel values are positioned between representative pixel values corresponding to two regions in said inspection image or said reference image.
5. (Original) The defect inspection apparatus according to claim 4, wherein each of said representative pixel values is an average value of values of pixels belonging to a region.
6. (Original) The defect inspection apparatus according to claim 3, wherein said plurality of specified pixel values are positioned outside a pixel value range corresponding to a specific region in said inspection image or said reference image.
7. (Original) The defect inspection apparatus according to claim 6, wherein said pixel value range corresponding to said specific region is set on the basis of a standard deviation of values of pixels belonging to said specific region.
8. (Original) The defect inspection apparatus according to claim 1, wherein said operation part sets a specified pixel value range including said plurality of specified pixel values.

9. (Original) The defect inspection apparatus according to claim 1, further comprising an input part for receiving an input of a specified pixel value range including said plurality of specified pixel values.

10. (Original) The defect inspection apparatus according to claim 1, wherein said transfer characteristics include inspection image transfer characteristics obtained from said inspection image and reference image transfer characteristics obtained from said reference image.

11. (Original) The defect inspection apparatus according to claim 1, wherein said operation part synthesizes a differential image between said inspection image and said reference image and said enhanced differential image and compares values of pixels in a synthesized image with a predetermined threshold value, to perform inspection.

12. (Original) The defect inspection apparatus according to claim 1, wherein each of a plurality of images which are obtained by dividing an image acquired by said image pickup part is said inspection image.

13. (Currently Amended) A defect inspection method for inspecting pattern on an object, comprising the steps of:

- a) preparing data of a reference image;

b) performing an image pickup of an object to acquire data of an inspection image which is multitone;

c) obtaining transfer characteristics to enhance difference between arbitrary pixel values pixels among a plurality of specified pixel values which are specified in defect detection relatively to difference between arbitrary pixel values other than said, plurality of specified pixel values;

d) obtaining an enhanced differential image between said inspection image and said reference image on the basis of said transfer characteristics; and

e) performing inspection on the basis of said enhanced differential image.

14. (Original) The defect inspection method according to claim 13, wherein said inspection image and said reference image are converted on the basis of said transfer characteristics to obtain a differential image between a converted inspection image and a converted reference image as said enhanced differential image in said step d).

15. (Original) The defect inspection method according to claim 13, wherein said transfer characteristics is set on the basis of pixel values of said inspection image or said reference image in said step c).

16. (Original) The defect inspection method according to claim 15, wherein said plurality of specified pixel values are positioned between representative pixel values corresponding to two regions in said inspection image or said reference image.

17. (Original) The defect inspection method according to claim 16, wherein each of said representative pixel values is an average value of values of pixels belonging to a region.

18. (Original) The defect inspection method according to claim 15, wherein said plurality of specified pixel values are positioned outside a pixel value range corresponding to a specific region in said inspection image or said reference image.

19. (Original) The defect inspection method according to claim 18, wherein said pixel value range corresponding to said specific region is set on the basis of a standard deviation of values of pixels belonging to said specific region.

20. (Original) The defect inspection method according to claim 13, further comprising the step of:

setting a specified pixel value range including said plurality of specified pixel values before said step c).

21. (Original) The defect inspection method according to claim 13, wherein said transfer characteristics include inspection image transfer characteristics obtained from said inspection image and reference image transfer characteristics obtained from said reference image.

22. (Original) The defect inspection method according to claim 13, wherein said step e) comprises the steps of:

synthesizing a differential image between said inspection image and said reference image and said enhanced differential image; and  
comparing values of pixels in a synthesized image with a predetermined threshold value.

23. (Original) The defect inspection method according to claim 13, wherein said step b) comprises the step of

dividing an image acquired by image pickup to obtain a plurality of inspection images.

24. (Currently Amended) A computer-readable recording medium carrying a program for executing inspection of pattern, wherein execution of said program by a computer causes said computer to perform the steps of:

- a) preparing data of a reference image;
- b) preparing data of an inspection image which is multitone;
- c) obtaining transfer characteristics to enhance difference between arbitrary pixel

values pixels among a plurality of specified pixel values which are specified in defect detection relatively to difference between arbitrary pixel values other than said plurality of specified pixel values;

- d) obtaining an enhanced differential image between said inspection image and said reference image on the basis of said transfer characteristics; and
- e) performing inspection on the basis of said enhanced differential image.